PRC Environmental Management, Inc.
233 North Michigan Avenue
Suite 1621
Chicago, IL 60601
312-856-8700
Fax 312-938-0118

US EPA RECORDS CENTER REGION 5
457709

PRC

FOCUSED SITE INSPECTION PRIORITIZATION SITE EVALUATION REPORT

LAIDLAW AVENUE LANDFILL (ALSO KNOWN AS LAIDLAW CITY DUMP) 935 LAIDLAW AVENUE CINCINNATI, HAMILTON COUNTY, OHIO

EPA ID NO. OHD 000 810 176

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Site Assessment Section
77 West Jackson Boulevard
Chicago, IL 60604

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Prepared by	:	PRC Environmental Management, Inc. (Christine Hirschman)
PRC Project Manager	:	Christopher Scott
Telephone No.	:	312/856-8700
EPA Work Assignment Manager	:	Jeanne Griffin
Telephone No.	:	312/886-3007

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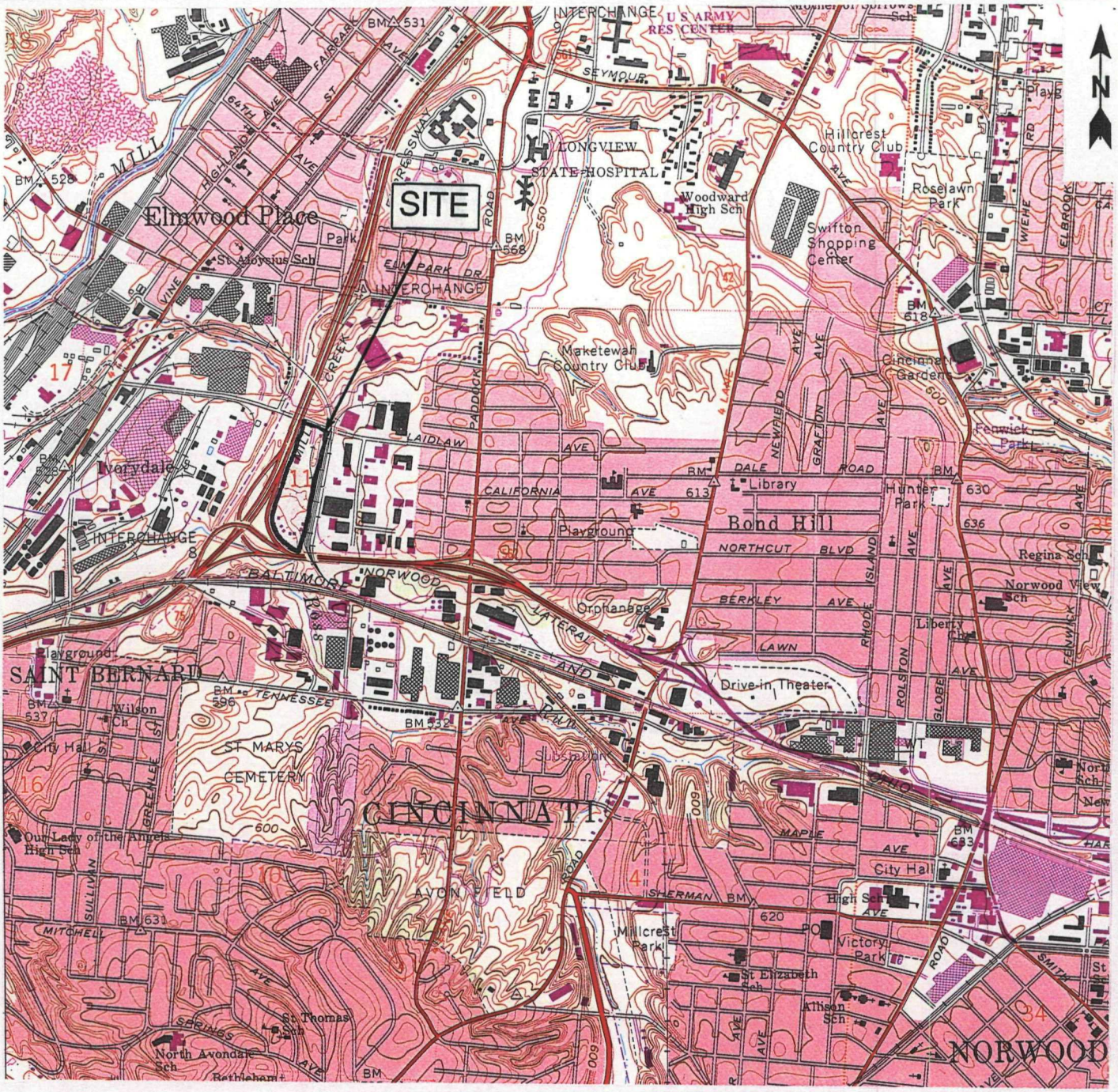
FIGURES



QUADRANGLE LOCATION

NOTE: On-site structures were not present during PRC reconnaissance.

SOURCE: Modified from USGS, Cincinnati East, Ohio, Quadrangle, 1981

LAIDLAW AVENUE LANDFILL
CINCINNATI, OHIO

FIGURE 1
SITE LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.

1.0 INTRODUCTION

Under Contract No. 68-W8-0084, Work Assignment No. 35-5JZZ, PRC Environmental Management, Inc. (PRC), has evaluated the Laidlaw Avenue Landfill (also known as Laidlaw City Dump) (Laidlaw) site in Cincinnati, Hamilton County, Ohio, as a potential candidate for the National Priorities List (NPL) and has prepared this site evaluation report. Using the Hazard Ranking System (HRS), PRC performed focused site inspection prioritization (FSIP) activities for the site to determine whether, or to what extent, it poses a threat to human health and the environment. This report presents the results of PRC's evaluation and summarizes the site conditions and targets pertinent to the migration and exposure pathways associated with the site. Information was obtained from A 1987 screening site inspection (SSI) report prepared by Ecology & Environment, Inc. (E&E), and from U.S. Environmental Protection Agency (EPA) files, Ohio Environmental Protection Agency (OEPA), and Ohio Department of Natural Resources (ODNR) files.

This report has five sections, including this introduction. Section 2.0 describes the site and provides a brief site history. Section 3.0 provides information about previous investigations conducted at the site. Section 4.0 provides information about the four migration and exposure pathways (groundwater migration, surface water migration, soil exposure, and air migration) that can be scored. Section 5.0 summarizes conditions at the site. References used in the preparation of this report are listed at the end of the text. In addition, the appendix to this report contains photographs taken during the site reconnaissance.

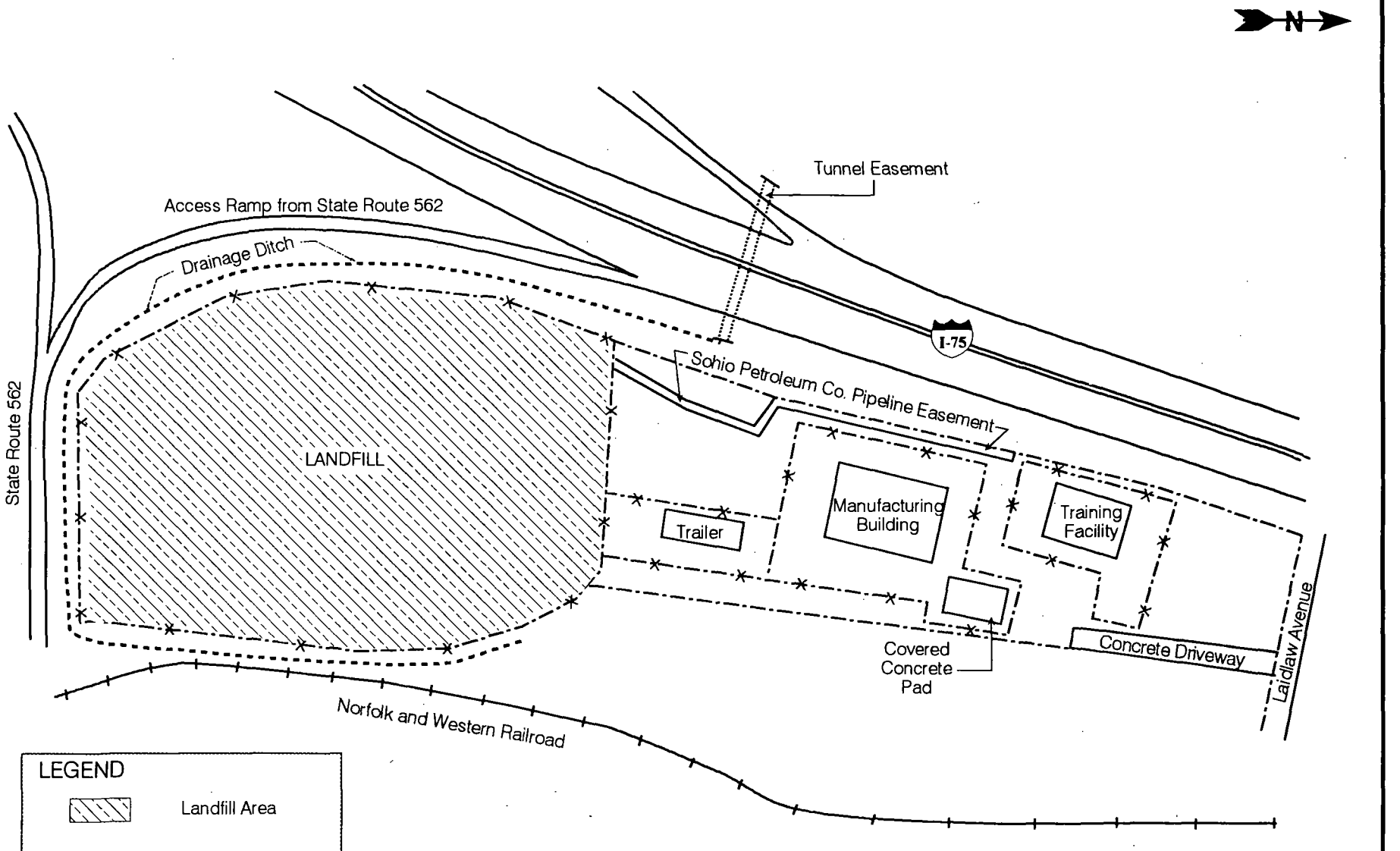
2.0 SITE DESCRIPTION AND HISTORY

The Laidlaw site is located at 935 Laidlaw Avenue, in Cincinnati, Hamilton County, Ohio, and is currently owned by the Procter & Gamble Company (P&G). The site covers 12 acres and is located in a heavily industrialized area of Cincinnati. The site's latitude and longitude are 39°10'33" N, 84°29'58" W. The site is bordered on the north by Laidlaw Avenue, on the east by Norfolk and Western railroad tracks, on the south by an access ramp from State Route 562 to Interstate 75, and on the west by Interstate 75 (USGS 1981). Mill Creek, the nearest surface water body, is about 0.5 mile northwest of the site. The site's location is shown in Figure 1.

In addition to the landfill, four structures are located on site. A P&G training facility lies on the northernmost corner of the site property. A nonoperational P&G perfume manufacturing building is located about 150 feet south of the training facility. A covered, cement-diked, concrete storage pad lies immediately northeast of the manufacturing building. An abandoned construction trailer lies about 50 feet south of the manufacturing building. Figure 2 shows the site layout.

The site was purchased by the City of Cincinnati in 1938 and was used as a disposal area for noncombustible debris (City of Cincinnati 1987). The original size of the site is unknown, but an aerial photo taken in 1938 showed it to be about 240 acres in size (ODNR 1938). The city used the northern part of the site property for disposal operations (ODNR 1938; 1958). In 1947, disposal operations ceased at the site, and the city's highway maintenance department began using the site as an outpost. In 1956, most of the site was abandoned for use in the construction of Interstate 75, also known as the Mill Creek Expressway. Construction of the expressway reduced the size of the site to about 12 acres. The 12-acre site was used by the highway maintenance department as a salt storage and dispensing area until 1962, when it was purchased by P&G.

P&G used the southern portion of the site as a landfill for demolition and packaging debris generated by its local manufacturing plant. From 1970 to 1973, the site operated under a Clean Fill Permit issued by the City of Cincinnati. Before and during this time, landfill constituents consisted primarily of carbon bleach, fly ash, building rubble, glycerine residues, scrap metal, glass, plastic, and off-specification soap products (P&G 1969). According to P&G representatives, the landfill was used from the time it was built until the time it was closed to dispose of ash from a coal-fired burner (PRC 1995b). In addition, liquid glycerine distillation by-products were allegedly disposed of in a trench that was about 7 feet wide and 300 feet long and that lay in the southwestern corner of the landfill. Although documentation states that this trench was used, an aerial photograph that was taken in 1974 does not show the trench (P&G 1969; ODNR 1974). The landfill was capped and closed by P&G in 1979 after it had reached its holding capacity (OEPA 1986). The current on-site structures were built in the early 1980s. The training facility is used several times each year, and the perfume manufacturing building is not operational. The trailer and the concrete storage pad are not used.



LAIDLAW AVENUE LANDFILL
CINCINNATI, OHIO

FIGURE 2

SITE LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

Source: Modified from E & E 1987

PRC conducted a reconnaissance at the site on May 10, 1995, and found current site conditions to be generally consistent with E&E's observations. According to site representatives, no additional sampling has occurred at the site since the 1987 SSI. A 6-foot-high, chain-link fence has been erected around the entire landfill boundary (see Photographs No. 1 and 2). Railroad ties and rusted drums were present along the rail yard side of the fence (see Photograph No. 3). Site representatives believed that the Norfolk and Western Railroad had dumped this debris at the landfill; after the fence was put up, the dumping ceased. Surface runoff from the site drains into a ditch that follows the landfill boundaries (see Photographs No. 4 and 5). The ditch drains into a tunnel easement just west of the site. The landfill itself is well vegetated. Honeysuckle bushes have been planted along the landfill boundaries, and the top of the landfill has been seeded with grass (see Photograph No. 6). Site representatives said that the grass is mowed on a regular basis. PRC did not observe any exposed waste, leachate, or spot erosion.

The four on-site structures are surrounded by an 8-foot-high, chain-link fence topped with barbed wire (see Photograph No. 7). Access to these structures is restricted.

3.0 PREVIOUS INVESTIGATIONS

A preliminary assessment was performed at the site by OEPA in 1986; the site was given a medium priority for further remedial action (OEPA 1986). Based on the state's recommendation, E&E performed an SSI at the site in 1987. Four surficial soil samples were taken at the site during the SSI. One sample was taken on top of the landfill. Three samples were taken along the drainage ditch. The background sample was taken in a cemetery about 0.5 mile south of the site. No additional environmental media were sampled during the investigation. Analytical results for all samples revealed polynuclear aromatic hydrocarbons (PAHs), pesticides, and metals (E&E 1987). Because many of these compounds were also detected in the off-site background sample, most of the contaminants could not be attributed to the Laidlaw site. However, elevated concentrations of beryllium, dieldrin, naphthalene, and selenium were attributed to the three samples collected in the drainage ditch at the site.

4.0 MIGRATION AND EXPOSURE PATHWAYS

This section describes the four migration and exposure pathways associated with the Laidlaw site. Section 4.1 discusses the groundwater migration pathway; Section 4.2 discusses the surface water migration pathway; Section 4.3 discusses the soil exposure pathway; and Section 4.4 discusses the air migration pathway.

4.1 GROUNDWATER MIGRATION PATHWAY

This section discusses geology and soils, groundwater releases, and targets associated with the groundwater migration pathway at the site.

4.1.1 Geology and Soils

Soils in the site area are of the Urban Land- Martinsville complex, which consists of well drained, moderately permeable soils formed from silty and loamy glacial outwash (USDA 1982). The site is located in the Mill Creek buried valley, a glacial sand and gravel outwash deposit with interbedded layers of clay. Ordovician age limestone and shale bedrock underlies the glacial deposits and is encountered at 250 to 270 feet below ground surface (bgs) (ODNR 1959).

Area groundwater supplies come from the buried valley, a nonhomogeneous, unconsolidated sand and gravel aquifer with irregular boundaries (ODNR 1946). The entire aquifer consists of 90 to 200 feet of permeable glacial outwash sand and gravel interbedded with layers of clay and till (ODNR 1959). Two distinct water-bearing formations exist in the site area. These are sand and gravel aquifers separated by a fairly continuous clay layer (ODNR 1970). The upper aquifer is encountered at 50 to 120 feet bgs, and the lower aquifer is encountered at 170 to 250 feet bgs; groundwater is found about 75 feet bgs (ODNR 1923 to 1975). Area groundwater supplies come from the lower of these water-bearing zones. Wells in the vicinity of the site are screened in the lower aquifer at depths of 170 to 250 feet bgs. However, these wells are used as production wells and do not provide drinking water supplies. The groundwater flow direction in the site area is to the south- to southwest toward the Ohio River (ODNR 1970).

4.1.2 Groundwater Releases

No release from the site to groundwater has been documented. However, no groundwater samples were collected as part of the SSI. Monitoring wells do not exist in the site area, and area production wells have not been sampled. Most of the debris placed in the landfill was nonhazardous. The wells within a 4-mile radius of the site are used for industrial purposes and do not provide drinking water to area residents.

4.1.3 Targets

Groundwater is not used as a source of drinking water in the vicinity of the site. The City of Cincinnati provides water to most of Cincinnati and Hamilton County and obtains drinking water from the Ohio River (CWW 1991). Although several production wells exist in the site area, these are used for industrial rather than municipal purposes (CWW 1991; ODNR 1923 to 1975). The nearest wells used as drinking water sources are those of the City of Wyoming, and are located about 3.6 miles upgradient of the site; these six wells serve about 9,700 individuals. These wells are screened in sand and gravel in the Mill Creek buried valley aquifer at depths of about 270 feet bgs (PRC 1995a). The site is not located in a wellhead protection area (OEPA 1995).

4.2 SURFACE WATER MIGRATION PATHWAY

The nearest surface water body is Mill Creek, which lies about 0.5 mile west of the site. Runoff from the site enters the drainage ditch at the base of the landfill. The ditch flows into a tunnel easement west of the site, and the tunnel easement discharges to Mill Creek about 0.5 mile west of the site. Mill Creek flows into the Ohio River about 6 miles southwest of the site. The City of Cincinnati obtains drinking water from an intake in the Ohio River, but this intake is located upstream from the point where the creek enters the river (CWW 1991). Both the Ohio River and Mill Creek are considered fisheries, but the area along Mill Creek near the site is channelized and is not frequented by local fishermen. The presence of a number of industries in the area that discharge waste to Mill Creek would make it difficult to attribute surface water contamination specifically to the site. No leachate outbreaks or erosional pathways were seen during the site reconnaissance, and all waste was well covered, making a release from the site to surface water unlikely.

4.3 SOIL EXPOSURE PATHWAY

Although a release to site soils may have occurred in the past, it is unlikely that area residents would have been affected. No residences, schools, or day-care facilities are located within 200 feet of the site (PRC 1995b; USGS 1981). Landfill wastes have not been exposed to the air since before the landfill was closed. Workers have not regularly used the site since 1979. The landfill is surrounded by chain-link fences, "no trespassing" signs, and major roadways, all of which significantly restrict access to the site. The site is located in a heavily industrialized area, and only 4,460 people reside within a 1-mile radius of the site.

4.4 AIR MIGRATION PATHWAY

Unconfirmed reports were made of the spontaneous combustion of carbon bleach in the landfill while it was active (E&E 1987). No air monitoring was ever performed on site. Currently the landfill is capped and heavily vegetated, minimizing the potential for airborne particulates to be released to the surrounding environment. Therefore, a release from the site to air is unlikely.

5.0 SUMMARY

The Laidlaw site was a waste disposal area and landfill from 1938 until it was closed in 1979. Most of the wastes deposited in the landfill were nonhazardous. During an SSI conducted in 1987, elevated concentrations of beryllium, dieldrin, naphthalene, and selenium were found in samples of on-site soils. If a release of hazardous substances from the site was to occur, the target population affected by the release would be minimal. Groundwater is not used as a source of drinking water in the area. The nearest surface water body is about 0.5 mile from the site. The landfill is closed, capped, well vegetated, and separated from potential targets by fencing, "no trespassing" signs, and major roadways.

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ODNR. 1958. Aerial Photograph of St. Bernard, Ohio. Roll Number 484. Frame Number 16. February 28.

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APPENDIX

SITE RECONNAISSANCE PHOTOGRAPHS
LAIDLAW AVENUE LANDFILL
ALSO KNOWN AS LAIDLAW CITY DUMP
CINCINNATI, HAMILTON COUNTY, OHIO

(Four Pages)

Photograph No. 1 Location: Landfill entrance
Orientation: South Date: 05/10/95
Description: Entrance to landfill with gate in chain-link fence

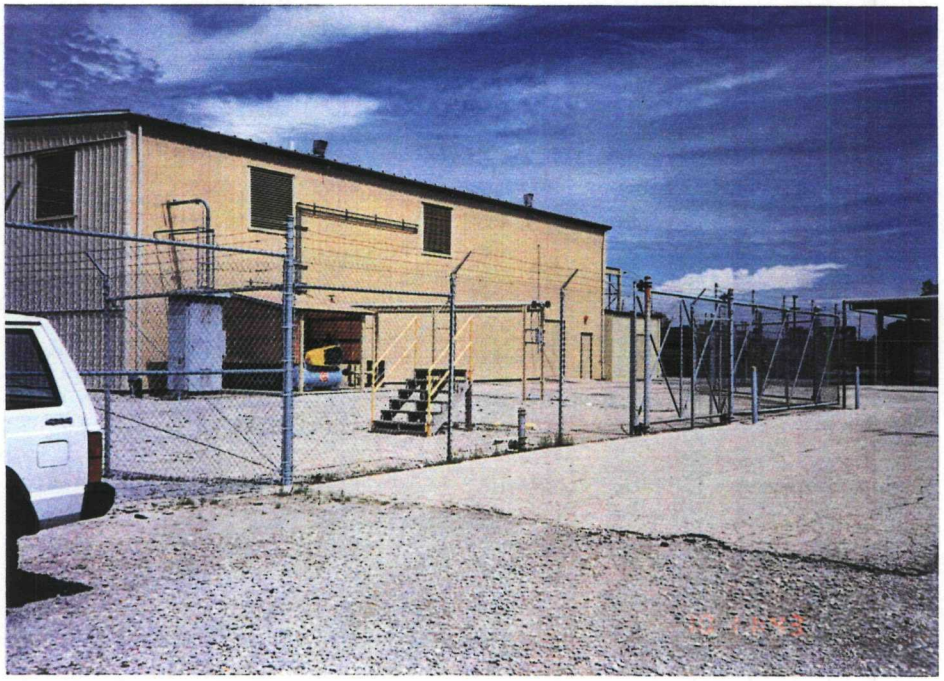
Photograph No. 2 Location: Norfolk and Western Railroad bridge
Orientation: West Date: 05/10/95
Description: Southern landfill boundary with fence along State Route 562

Photograph No. 3 Location: Norfolk and Western Railroad property
Orientation: West, facing landfill Date: 05/10/95
Description: Waste reportedly from Norfolk & Western Railroad dumped along fence line of landfill

Photograph No. 4 Location: Norfolk and Western Railroad property
Orientation: West, facing landfill Date: 05/10/95
Description: Drainage ditch with standing water

Photograph No. 5 Location: On top of landfill
Orientation: Southwest Date: 05/10/95
Description: View of drainage ditch from the top of the landfill

Photograph No. 6 Location: Near landfill entrance
Orientation: Southwest Date: 05/10/95
Description: Cap of landfill, covered by well maintained vegetation



Photograph No. 7 Location: Just outside landfill boundary
Orientation: Northwest, facing Laidlaw Avenue Date: 05/10/95
Description: Perfume manufacturing building, surrounded by chain-link fence with barbed wire